surface is injurious to the young trees and in particular makes the soil below dry much faster than if the surface is kept loose. Where water is applied direct to the surface of the soil, the ground should be hoed with the khurpi after each watering; where gharas are used, hoeing should be done whenever the surface is getting compact.

Special measures in droughts

6. Special care is needed to secure that irrigation is adequate in seasons of drought. The responsible official must be on the alert throughout the rains, and when a break is prolonged he must take instant measures to secure that the trees are getting enough water. A year's work may often be thrown away by neglect for a very few days at this season.

CHAPTER X

(3) Maintenance—Miscellaneous

General

1. The principal operations employed to maintain young trees are those enumerated in the two preceding chapters, keeping the guards in an efficient state, and regulating the supply of moisture. There are, however, a few other points requiring attention.

Pruning

2. It has been said that it is better not to prune at all than to prune badly, and skill is required for good pruning. This pruning is required in the nursery, during the period of maintenance and during the after-life of the tree. For convenience it is dealt with in Chapter XI.

Straightening crooked trees

3. Much pruning should not be required at the road side if the trees have been carefully tended in the nursery, only the best selected for planting at the road side and only large trees planted as recommended. If small trees are planted occasionally some get a crooked start or are bent by the prevailing wind. In such cases the tree should be straightened by tying the stem to a straight stick. It is not advisable to fix this stick

in the ground close to the stem as the roots of the tree suffer ; it is better to support it by tying to two stakes one on either side of the tree and in the line of the prevailing wind. The tree may be tied to the straight stick at one or more points as needed, but special care must be taken that the bark of the tree is not injured in any way in this process, and the material used for tying should be soft unspun hemp fibre, or some similar substance, and not cord or string.

Replacing failures

4. If a length of road has been planted early in the rainy season, the trees should be examined carefully after three weeks or a month, and any that have not made a good start should be pulled up and replaced by new plants. Where, however, planting has been delayed till late in the season, this course is not practicable, and the failures must be left to be replaced in the next year.

Termination of maintenance

5. When the period of maintenance, prescribed by the plan, is drawing to a close each length of avenue should be carefully inspected to see whether the trees can safely be left to themselves. It may be found that accidents of season or careless work have resulted in the trees being backward : and if there is any reason to think that any considerable number of trees still require attention, arrangements must be made to leave a Mali in charge for another year. If there is no doubt that the trees can be left to themselves, the length of avenue should be classed as established, but the responsible official should visit it occasionally for the first year and, if he sees that the trees are suffering from any cause, he should take measures at once to have them attended to. If there is any doubt whether the trees are established or not, it is safe rule to assume that they need more attention.

Removal of tree-guards

6. It is not necessary to remove the tree-guards immediately avenue is classed as established. This should be done only when the lower branches of the trees are sufficiently high to be out of reach of cattle and goats and the trunks are strong enough to withstand cattle. If this is not the case, any guards except

live hedges should be left standing for a year or two more; live hedges, however, should be destroyed at once as the risk of their growing into rank jungle and injuring the tree is too great to be run.

CHAPTER XI

Management of Avenues

(1) Pruning

General

1. The most important part of this management, after the trees have become self-supporting, will consist of pruning. Thinning will rarely be required as the maintenance of trees at the road side is usually so costly that no more will be planted than are wanted for the avenue.

Pruning

2. The object of pruning is to obtain a shapely healthy tree with shade not over-thick. It should begin in the nursery and continue almost to the end of the life of the tree. It has, therefore, been thought best to deal with it as a whole in this place.

Since the tree must not interfere with the traffic on the road it must have a clear stem free from branches for a certain height from the ground. This height will vary with the conditions and is sometimes given as 8 to 10 feet. If the branches grow horizontally it may be necessary to shorten some of these. But the height of 11 feet to the first branch should not be exceeded. Keeping this height from the ground clear of branches helps the drying of the road after rain and thus reduces to some extent the wear of the road surface.

Forming straight boles in young road-side trees

3. The smaller the branches are when pruned, the less the harm done. The natural tendency of many trees, notably the firs and pines, is to grow with a straight stem and regular conical crown. Other trees, including most of the broad-leaf trees, are most irregular in their growth and naturally have many trunks, or great lateral branches. By the judicious pruning